

SHARP

SUPPLEMENTAL SERVICE MANUAL

S3905R303CPW/

MICROWAVE OVEN

MODEL **R-303CW**



In the interest of user-safety the oven should be restored to its original condition and only parts identical to those specified should be used.

WARNING TO SERVICE PERSONNEL: Microwave ovens contain circuitry capable of producing very high voltage and current, contact with following parts may result in a severe, possibly fatal, electrical shock. (High Voltage Capacitor, High Voltage Power Transformer, Magnetron, High Voltage Rectifier Assembly, High Voltage Harness etc..)

This is a supplemental Service Manual for Model R-303CW. This model is quite similar to base model R-308CW. Use this supplemental manual together with the Base Model Service Manual (Refer No. is S1901R310CPW/) for complete operation, service information, etc..

TABLE OF CONTENTS

	Page
PRECAUTIONS TO BE OBSERVED BEFORE AND DURING SERVICING TO	
AVOID POSSIBLE EXPOSURE TO EXCESSIVE MICROWAVE ENERGY	INSIDE FRONT COVER
BEFORE SERVICING	INSIDE FRONT COVER
WARNING TO SERVICE PERSONNEL	1
FOREWORD AND WARNING	2
PRODUCT SPECIFICATIONS	3
SCHEMATIC DIAGRAM	4
TEST PROCEDURE	5
POWER UNIT CIRCUIT	7
CPU UNIT CIRCUIT	8
PRINTED WIRING BOARD	9
PARTS LIST	10
PACKING AND ACCESSORIES	11

SHARP CORPORATION

This document has been published to be used for after sales service only.
The contents are subject to change without notice.

PRECAUTIONS TO BE OBSERVED BEFORE AND DURING SERVICING TO AVOID POSSIBLE EXPOSURE TO EXCESSIVE MICROWAVE ENERGY

- (a) Do not operate or allow the oven to be operated with the door open.
- (b) Make the following safety checks on all ovens to be serviced before activating the magnetron or other microwave source, and make repairs as necessary: (1) interlock operation, (2) proper door closing, (3) seal and sealing surfaces (arcing, wear, and other damage), (4) damage to or loosening of hinges and latches, (5) evidence of dropping or abuse.
- (c) Before turning on microwave power for any service test or inspection within the microwave generating compartments, check the magnetron, wave guide or transmission line, and cavity for proper alignment, integrity, and connections.
- (d) Any defective or misadjusted components in the interlock, monitor, door seal, and microwave generation and transmission systems shall be repaired, replaced, or adjusted by procedures described in this manual before the oven is released to the owner.
- (e) A microwave leakage check to verify compliance with the Federal Performance Standard should be performed on each oven prior to release to the owner.

BEFORE SERVICING

Before servicing an operative unit, perform a microwave emission check as per the Microwave Measurement Procedure outlined in this service manual.

If microwave emissions level is in excess of the specified limit, contact SHARP ELECTRONICS CORPORATION immediately @1-800-237-4277.

If the unit operates with the door open, service person should 1) tell the user not to operate the oven and 2) contact SHARP ELECTRONICS CORPORATION and The Food and Drug Administration's Center for Devices and Radiological Health immediately.

Service personnel should inform SHARP ELECTRONICS CORPORATION of any certified unit found with emissions in excess of $4\text{mW}/\text{cm}^2$. The owner of the unit should be instructed not to use the unit until the oven has been brought into compliance.

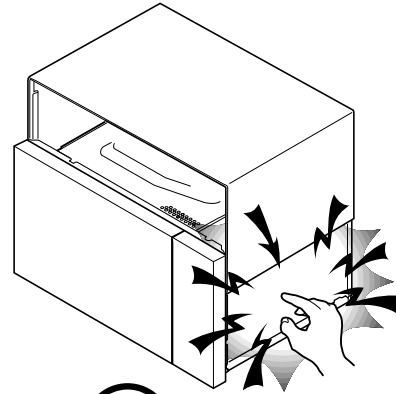
WARNING TO SERVICE PERSONNEL

Microwave ovens contain circuitry capable of producing very high voltage and current, contact with following parts may result in a severe, possibly fatal, electrical shock.

(Example)

High Voltage Capacitor, High Voltage Power Transformer, Magnetron, High Voltage Rectifier Assembly, High Voltage Harness etc..

Read the Service Manual carefully and follow all instructions.



**Don't Touch !
Danger High Voltage**

Before Servicing



1. Disconnect the power supply cord , and then remove outer case.
2. Open the door and block it open.
3. Discharge high voltage capacitor.

WARNING: RISK OF ELECTRIC SHOCK. DISCHARGE THE HIGH-VOLTAGE CAPACITOR BEFORE SERVICING.

The high-voltage capacitor remains charged about 60 seconds after the oven has been switched off. Wait for 60 seconds and then short-circuit the connection of the high-voltage capacitor (that is the connecting lead of the high-voltage rectifier) against the chassis with the use of an insulated screwdriver.

Whenever troubleshooting is performed the power supply must be disconnected. It may in, some cases, be necessary to connect the power supply after the outer case has been removed, in this event,

1. Disconnect the power supply cord, and then remove outer case.
2. Open the door and block it open.
3. Discharge high voltage capacitor.
4. Disconnect the leads to the primary of the power transformer.
5. Ensure that the leads remain isolated from other components and oven chassis by using insulation tape.
6. After that procedure, reconnect the power supply cord.

When the testing is completed,

1. Disconnect the power supply cord, and then remove outer case.
2. Open the door and block it open.
3. Discharge high voltage capacitor.
4. Reconnect the leads to the primary of the power transformer.
5. Reinstall the outer case (cabinet).
6. Reconnect the power supply cord after the outer case is installed.
7. Run the oven and check all functions.

After repairing

1. Reconnect all leads removed from components during testing.
2. Reinstall the outer case (cabinet).
3. Reconnect the power supply cord after the outer case is installed.
4. Run the oven and check all functions.

Microwave ovens should not be run empty. To test for the presence of microwave energy within a cavity, place a cup of cold water on the oven turntable, close the door and set the power to HIGH and set the microwave timer for two (2) minutes. When the two minutes has elapsed (timer at zero) carefully check that the water is now hot. If the water remains cold carry out **Before Servicing** procedure and re-examine the connections to the component being tested.

When all service work is completed and the oven is fully assembled, the microwave power output should be checked and a microwave leakage test should be carried out.

SERVICE MANUAL

SHARP

MICROWAVE OVEN

R-303CW

FOREWORD

This Manual has been prepared to provide Sharp Electronics Corp. Service Personnel with Operation and Service Information for the SHARP MICROWAVE OVEN, R-303CW.

The model R-303CW is quite similar to base model R-308CW (Refer No. is S1901R310CPW/).

It is recommended that service personnel carefully study the entire text of this manual and the base model's manual so that they will be qualified to render satisfactory customer service.

Check the interlock switches and the door seal carefully. Special attention should be given to avoid electrical shock and microwave radiation hazard.

WARNING

Never operate the oven until the following points are ensured.

- (A) The door is tightly closed.
- (B) The door brackets and hinges are not defective.
- (C) The door packing is not damaged.
- (D) The door is not deformed or warped.
- (E) There is no other visible damage with the oven.

Servicing and repair work must be carried out only by trained service personnel.

DANGER

Certain initial parts are intentionally not grounded and present a risk of electrical shock only during servicing. Service personnel - Do not contact the following parts while the appliance is energized; High Voltage Capacitor, Power Transformer, Magnetron, High Voltage Rectifier Assembly, High Voltage Harness; If provided, Vent Hood, Fan assembly, Cooling Fan Motor.

All the parts marked “*” on parts list are used at voltages more than 250V.

Removal of the outer wrap gives access to voltage above 250V.

All the parts marked “Δ” on parts list may cause undue microwave exposure, by themselves, or when they are damaged, loosened or removed.

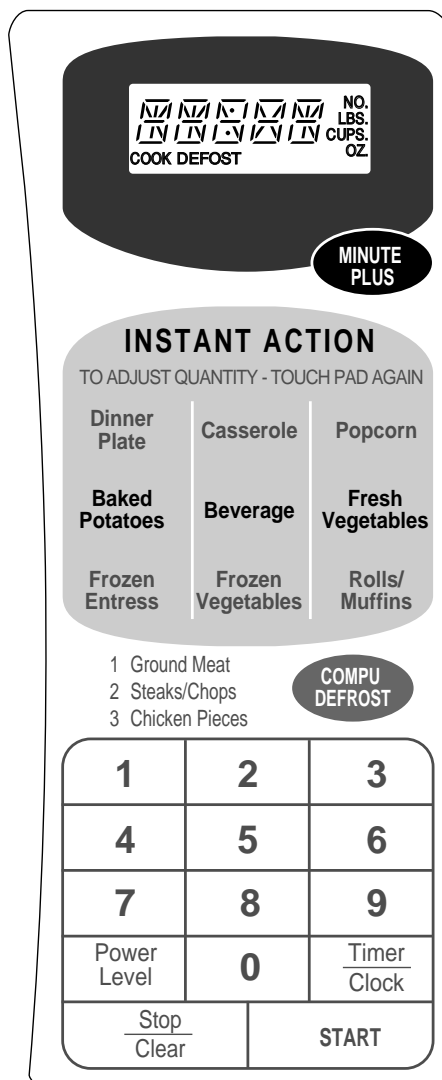
SHARP ELECTRONICS CORPORATION

SHARP PLAZA, MAHWAH,
NEW JERSEY 07430-2135

SPECIFICATION

ITEM	DESCRIPTION
Power Requirements	120 Volts / 13 Amperes 60 Hertz Single phase, 3 wire grounded
Power Output	1100 watts (IEC-705 TEST PROCEDURE) Operating frequency of 2450MHz
Case Dimensions	Width 20-1/2" Height 11-7/8" Depth 16-7/8"
Cooking Cavity Dimensions	Width 14-3/4" Height 8-3/4" Depth 15-3/4"
1.1 Cubic Feet	
Control Complement	Touch Control System Clock (1:00 - 12:59) Timer (0 - 99 min. 99 seconds) Microwave Power for Variable Cooking Repetition Rate; P-HI Full power throughout the cooking time P-90 approx. 90% of Full Power P-80 approx. 80% of Full Power P-70 approx. 70% of Full Power P-60 approx. 60% of Full Power P-50 approx. 50% of Full Power P-40 approx. 40% of Full Power P-30 approx. 30% of Full Power P-20 approx. 20% of Full Power P-10 approx. 10% of Full Power P-0 No power throughout the cooking time MINUTE PLUS pads INSTANT START pads COMPU DEFROST pads Number selection pads Power Level pad, Timer/Clock pad Stop/Clear pad, START pad
Oven Cavity Light	Yes
Safety Standard	UL Listed FCC Authorized DHHS Rules, CFR, Title 21, Chapter 1, Subchapter J

TOUCH CONTROL PANEL



SCHEMATIC

NOTE: CONDITION OF OVEN

1. DOOR CLOSED
2. CLOCK APPEARS ON DISPLAY

NOTE: "★" indicates components with potential above 250V.

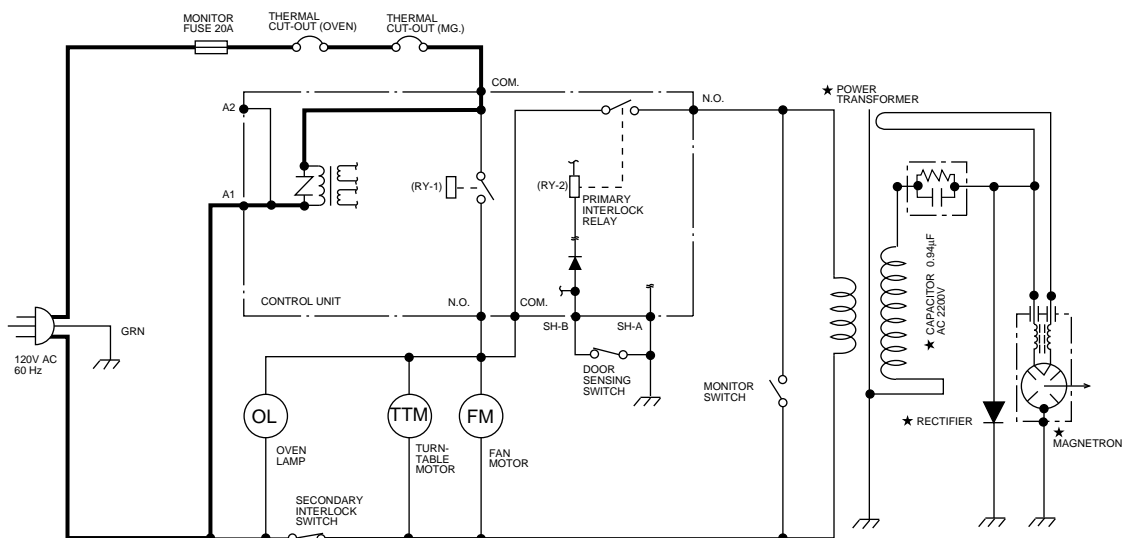


Figure O-1. Oven Schematic-Off Condition

TEST PROCEDURES

PROCEDURE LETTER	COMPONENT TEST
I	<p><u>TOUCH CONTROL PANEL ASSEMBLY TEST</u></p> <p>The touch control panel consists of circuits including semiconductors such as LSI, ICs, etc. Therefore, unlike conventional microwave ovens, proper maintenance cannot be performed with only a voltmeter and ohmmeter.</p> <p>In this service manual, the touch control panel assembly is divided into two units, Control Unit and Key Unit, and also the Control Unit is divided into two units, CPU Unit and Power Unit, and troubleshooting by unit replacement is described according to the symptoms indicated.</p> <p>Before testing,</p> <ol style="list-style-type: none"> 1) Disconnect the power supply cord, and then remove outer case. 2) Open the door and block it open. 3) Discharge high voltage capacitor. 4) Disconnect the leads to the primary of the power transformer. 5) Ensure that these leads remain isolated from other components and oven chassis by using insulation tape. 6) After that procedure, re-connect the power supply cord. <p>1. Key Unit.</p> <p>NOTE ;</p> <ol style="list-style-type: none"> 1) Disconnect the power supply cord, and then remove outer case. 2) Open the door and block it open. 3) Discharge high voltage capacitor. 4) Check Key unit ribbon connection before replacement. 5) Reconnect all leads removed from components during testing. 6) Re-install the outer case (cabinet). 7) Reconnect the power supply cord after the outer case is installed. 8) Run the oven and check all functions. <p>The following symptoms indicate a defective key unit.</p> <ol style="list-style-type: none"> a) When touching the pads, a certain pad produces no signal at all. b) When touching a number pad, two figures or more are displayed. c) When touching the pads, sometimes a pad produces no signal. <p>If the Key unit is defective.</p> <ol style="list-style-type: none"> 1) Disconnect the power supply cord, and then remove outer case. 2) Open the door and block it open. 3) Discharge high voltage capacitor. 4) Replace the Key unit. 5) Reconnect all leads removed from components during testing. 6) Re-install the outer case (cabinet). 7) Reconnect the power supply cord after the outer case is installed. 8) Run the oven and check all functions. <p>2. Control Unit</p> <p>The following symptoms indicate a defective control unit. Before replacing the control unit, perform the Key unit test (Procedure J) to determine if control unit is faulty.</p> <p>2-1 In connection with pads.</p> <ol style="list-style-type: none"> a) When touching the pads, a certain group of pads do not produce a signal. b) When touching the pads, no pads produce a signal. <p>2-2 In connection with indicators</p> <ol style="list-style-type: none"> a) At a certain digit, all or some segments do not light up. b) At a certain digit, brightness is low. c) Only one indicator does not light. d) The corresponding segments of all digits do not light up; or they continue to light up. e) Wrong figure appears. f) A certain group of indicators do not light up. g) The figure of all digits flicker. <p>2-3 Other possible problems caused by defective control unit.</p> <ol style="list-style-type: none"> a) Buzzer does not sound or continues to sound.

TEST PROCEDURES

PROCEDURE LETTER

COMPONENT TEST

- b) Clock does not operate properly.
- c) Cooking is not possible.

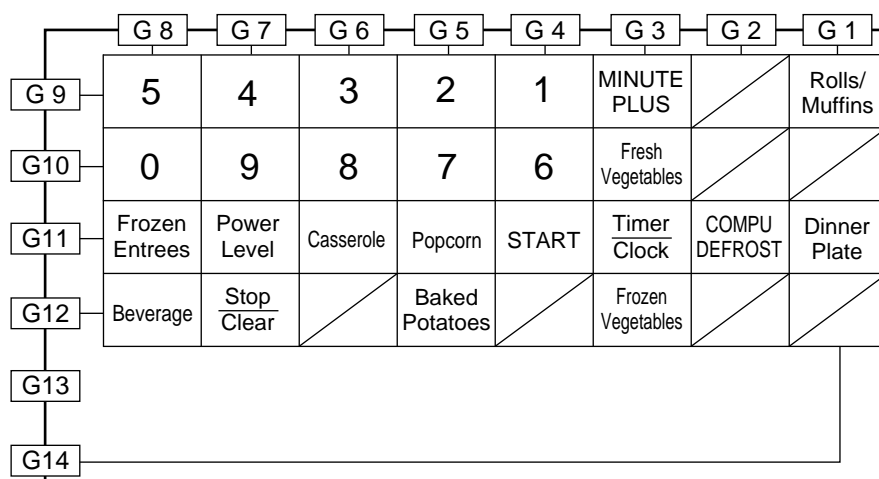
When testing is completed,

- 1) Disconnect the power supply cord, and then remove outer case.
- 2) Open the door and block it open.
- 3) Discharge high voltage capacitor.
- 4) Reconnect all leads removed from components during testing.
- 5) Re-install the outer case (cabinet).
- 6) Reconnect the power supply cord after the outer case is installed.
- 7) Run the oven and check all functions.

J

KEY UNIT TEST

1. Disconnect the power supply cord, and then remove outer case.
2. Open the door and block it open.
3. Discharge high voltage capacitor.
4. If the display fails to clear when the STOP/CLEAR pad is depressed, first verify the flat ribbon cable is making good contact, verify that the door sensing switch (stop switch) operates properly; that is the contacts are closed when the door is closed and open when the door is open. If the door sensing switch (stop switch) is good, disconnect the flat ribbon cable that connects the key unit to the control unit and make sure the door sensing switch is closed (either close the door or short the door sensing switch connector). Use the Key unit matrix indicated on the control panel schematic and place a jumper wire between the pins that correspond to the STOP/CLEAR pad making momentary contact. If the control unit responds by clearing with a beep the key unit is faulty and must be replaced. If the control unit does not respond, it is faulty and must be replaced. If a specific pad does not respond, the above method may be used (after clearing the control unit) to determine if the control unit or key pad is at fault.
5. Reconnect all leads removed from components during testing.
6. Re-install the outer case (cabinet).
7. Reconnect the power supply cord after the outer case is installed.
8. Run the oven and check all functions.



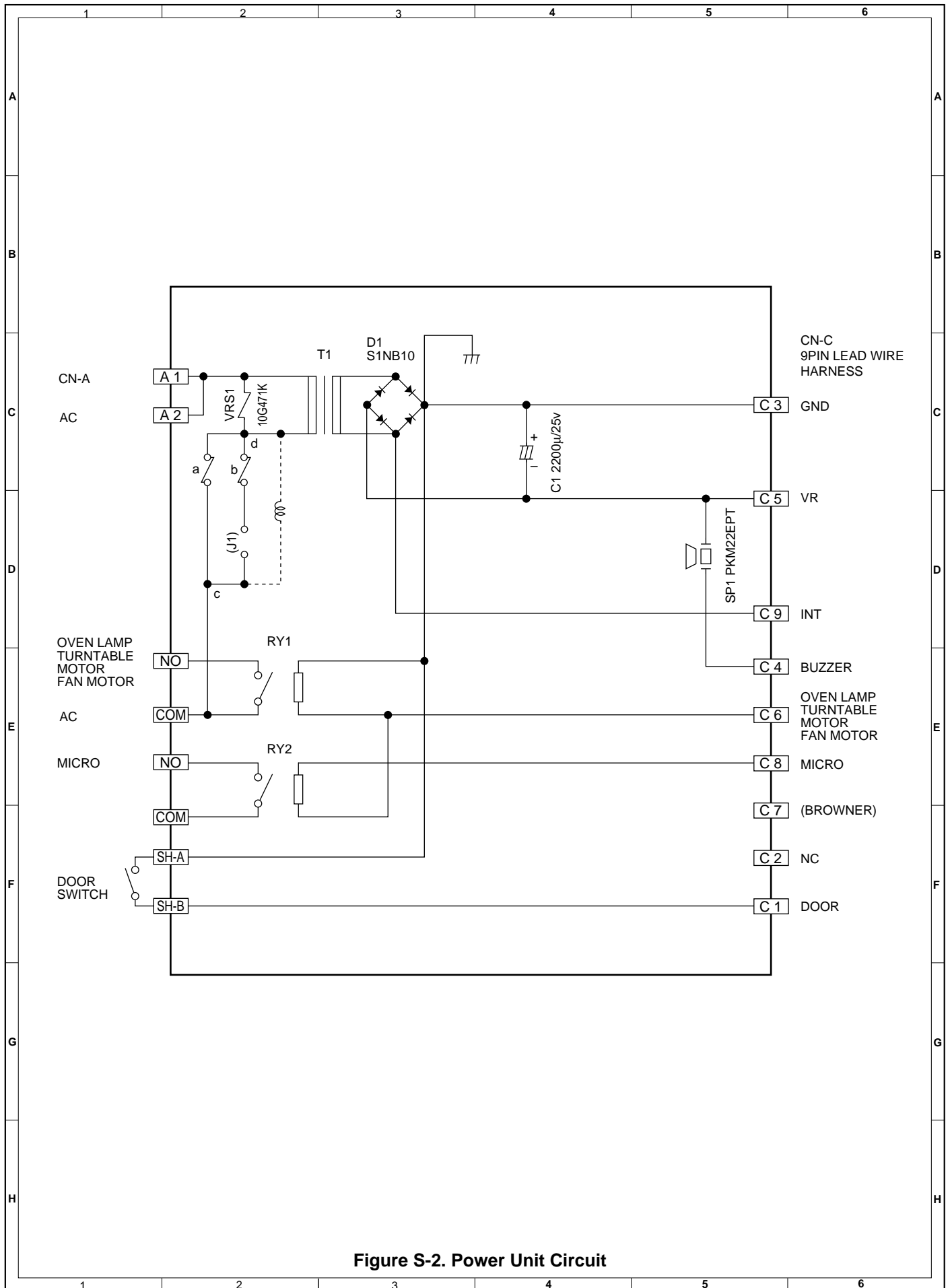
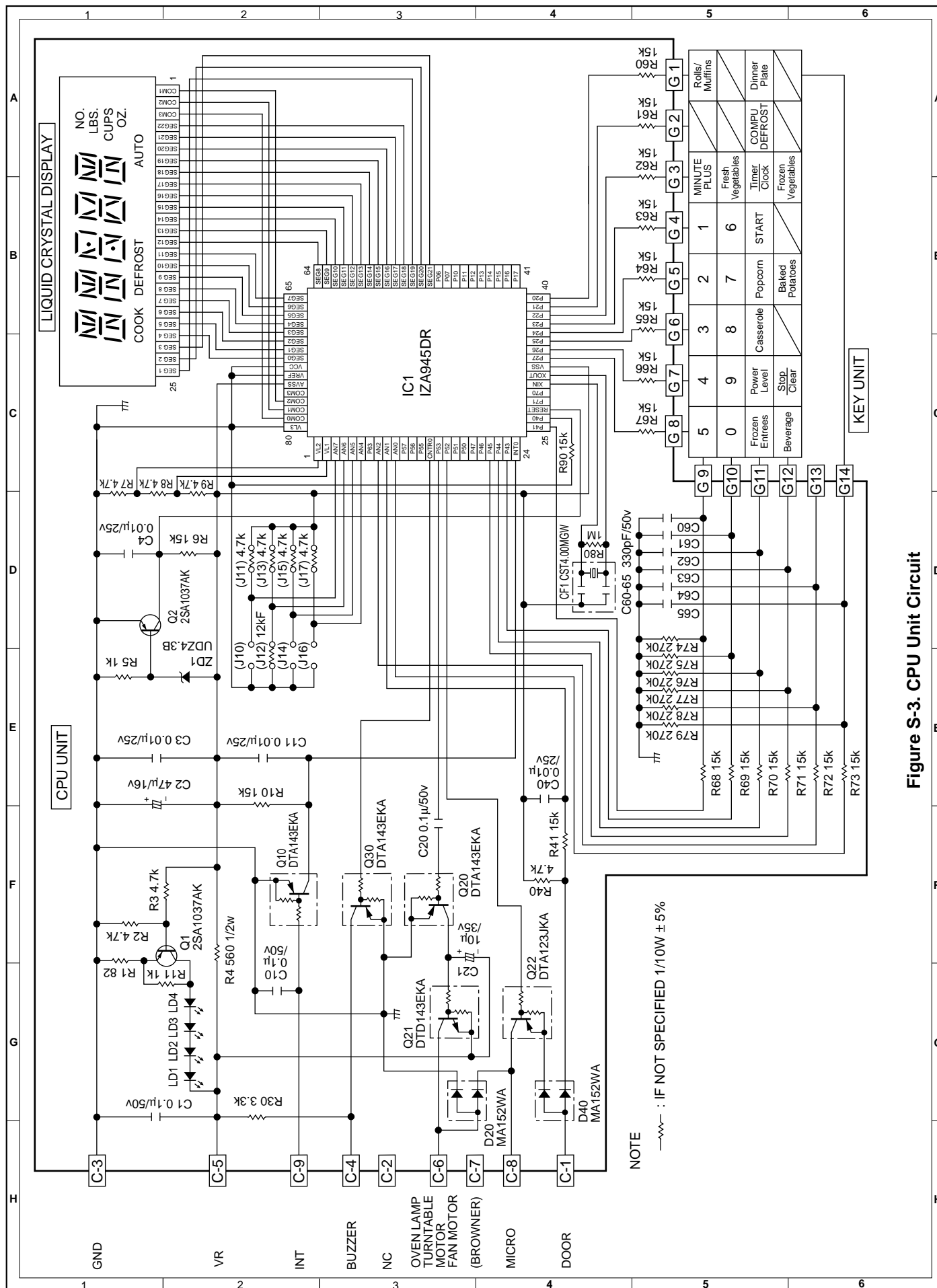


Figure S-2. Power Unit Circuit



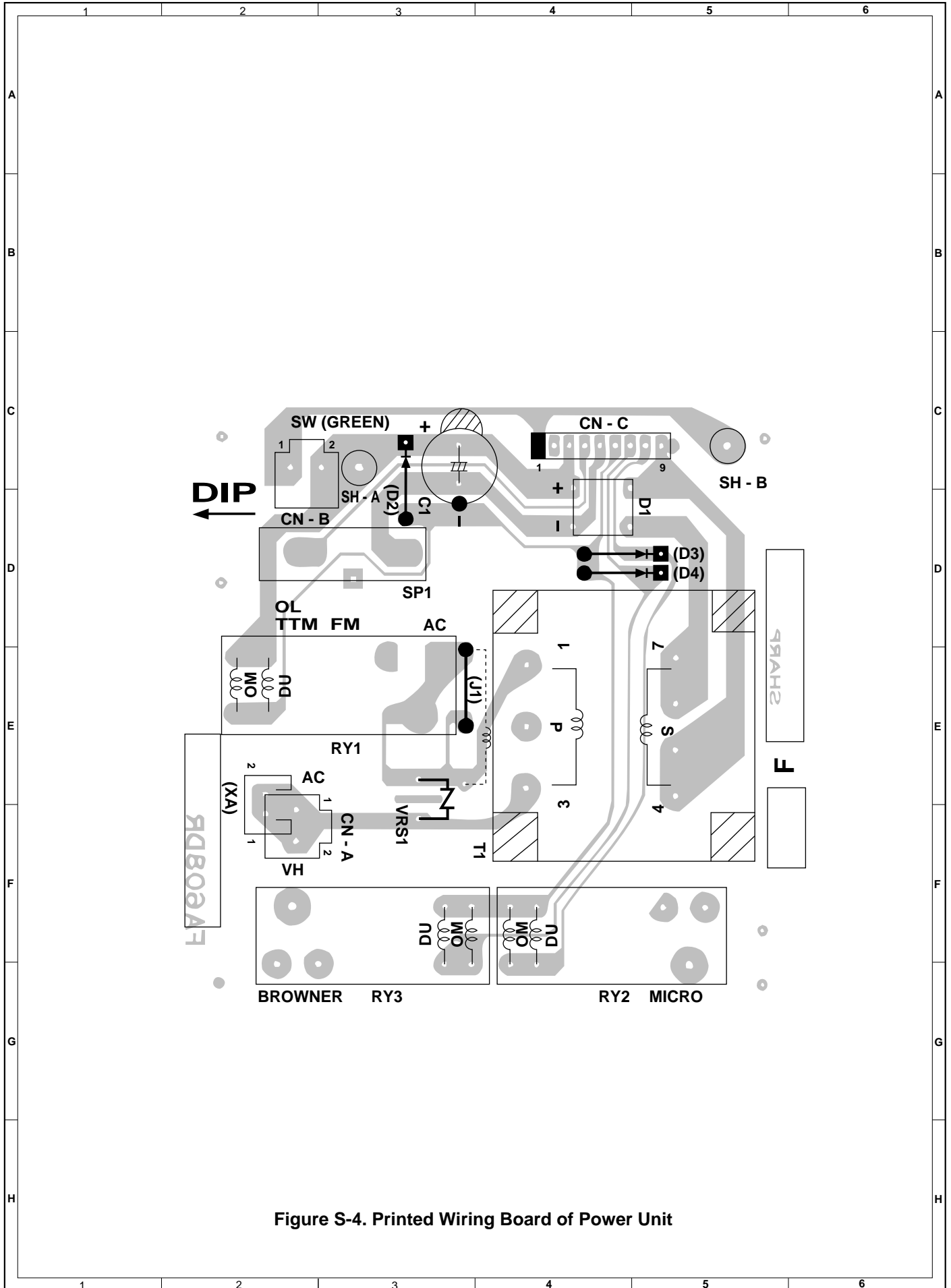


Figure S-4. Printed Wiring Board of Power Unit

PARTS LIST

Note: The parts marked “Δ” may cause undue microwave exposure.
The parts marked “*” are used in voltage more than 250V.

REF. NO.	PART NO.	DESCRIPTION	Q'TY	CODE
----------	----------	-------------	------	------

ELECTRIC PARTS

1- 1	QSW-MA137WRE0	2nd interlock switch / door sensing switch	2	AH
1- 2	QFSHDA009WRE0	Fuse holder	1	AH
1- 3	FFS-BA023WRK0	Monitor fuse and monitor switch assembly	1	AS
1- 4	RTHM-A078WRE0	Thermal cut-out 125 deg.	1	AL
1- 5	FACCDAA082WRE0	Power supply cord	1	AV
1- 5	FACCDAA081WRE0	Power supply cord (Interchangeable)	1	AP
* 1- 6	FH-DZA088WRK0	High voltage rectifier assembly	1	AP
* 1- 7	RC-QZA173WRE0	High voltage capacitor	1	AX
* 1- 7	RC-QZA211WRE0	High voltage capacitor (Interchangeable)	1	AV
Δ* 1- 8	RV-MZA288WRE0	Magnetron	1	BK
1- 9	RMOTEA383WRE0	Fan motor	1	AV
1-10	QSOCLA021WRE0	Oven lamp socket	1	AH
1-11	RLMPTA068WRE0	Oven lamp	1	AG
1-11	RLMPTA030WRE0	Oven lamp (Interchangeable)	1	AE
1-12	RMOTDA161WRE0	Turntable motor	1	AU
1-12	RMOTDA211WRE0	Turntable motor (Interchangeable)	1	AS
1-13	RTHM-A080WRE0	Thermal cut-out 145 deg.	1	AP
* 1-14	RTRN-A576WRE0	Power transformer	1	BM

CABINET PARTS

2- 1	GCABUA690WRP0	Outer case cabinet	1	AZ
2- 2	GDAI-A316WRW0	Bottom plate	1	AX
2- 3	GLEGPA074WRE0	Foot	2	AC
2- 4	GLEGPA077WRF0	Leg	1	AH

CONTROL PANEL PARTS

3- 1	CPWBFA821WRK0	Power unit	1	BA
3- 1A	QCNCMA446DRE0	2-pin connector (CN-A)	1	AC
3- 1B	FW-VZA250DRE0	9pin wire harness (CN-C)	1	AE
3- 1C	FW-VZA195DRE0	Switch harness A (SH-A)	1	AD
3- 1D	FW-VZA197DRE0	Switch harness B (SH-B)	1	AD
C1	RC-EZA333DRE0	Capacitor 2200 uF 25V	1	AE
D1	RSRCDA013DRE0	Diode bridge (S1NB10)	1	AG
RY1-2	RRLY-A114DRE0	Relay (DU12D1-1P(M)-R)	2	AN
SP1	RALM-A014DRE0	Buzzer (PKM22EPT)	1	AG
T1	RTRNPA110DRE0	Transformer	1	AP
VRS1	RH-VZA032DRE0	Varistor (10G471K)	1	AE
3- 2	DPWBFB914WRK0	CPU unit	1	BA
3- 3	FPNLCA437WRK0	Control panel frame with key unit	1	BD
3- 3-1	FUNTKA935WRE0	Key unit	1	AY
3- 4	JBTN-B099WRF0	Open button	1	AF
3- 5	MSPRCA050WRE0	Open button spring	1	AB
3- 6	PSHEPA588WRE0	LED sheet	1	AE
3- 7	LHLD-A202WRF0	LCD holder	1	AK
3- 8	XEPSD30P08XS0	Screw; 3mm x 8mm	4	AA

OVEN PARTS

Δ 4- 1	PDUC-A724WRF0	Air separator	1	AU
4- 2	PPACGA084WRF0	TTM packing	1	AF
4- 3	PHOK-A114WRF0	Latch hook	1	AQ
4- 4	LBNDKA099WRW0	Capacitor holder	1	AD
4- 5	NFANJA029WRE0	Fan blade	1	AL
Δ 4- 6	PDUC-A728WRW0	Fan duct	1	AT
4- 7	*****	Oven cavity (Not a replaceable part)	1	--
4- 8	LANGFA194WRW0	Chassis support	1	AU
4- 9	PCUSGA321WRP0	Cushion	1	AH
4-10	PCUSUA270WRP0	Cushion	1	AG
4-11	MLEVPA233WRF0	Switch lever	1	AG
4-12	NCPL-A045WRF0	Coupling	1	AH
4-13	PCUSUA511WRP0	Cushion	1	AC
4-14	PCOVPA349WRE0	Waveguide cover	1	AE
4-15	PCUSGA339WRP0	Cushion	1	AG
4-16	PCUSGA528WRP0	Cushion	1	AF
4-17	PCUSUA512WRP0	Cushion	1	AB
4-18	PCUSUA126WRE0	Cushion	1	AC
4-19	PCUSUA527WRP0	Cushion	1	AE
4-20	PCUSUA212WRP0	Cushion	1	AB

REF. NO.	PART NO.	DESCRIPTION	Q'TY	CODE
DOOR PARTS				
Δ 5- 1	FDORFA332WRT0	Door panel	1	BB
5- 2	PSHEPA382WRE0	Sealer film	1	AH
Δ 5- 3	GWAKPA610WRR0	Door frame	1	AX
5- 4	HPNL-A716WRR0	Door screen	1	AQ
Δ 5- 5	LSTPPA188WRF0	Latch head	1	AG
5- 6	MSPRTA187WRE0	Latch spring	1	AC
5- 7	XCPSD40P08000	Screw : 4mm x 8mm	4	AA
5- 8	PCUSUA461WRP0	Cushion	1	AB
5- 9	GCOVHA405WRF0	Choke cover	1	AH

MISCELLANEOUS

6- 1	FROLPA079WRK0	Turntable support	1	AQ
6- 2	NTNT-A079WRE0	Turntable tray	1	AR
6- 3	FW-VZB723WRE0	Main wire harness	1	AU
* 6- 4	QW-QZA150WRE0	High voltage wire B	1	AF
6- 5	PZET-A012WRE0	Terminal insulator	1	AB
6- 6	TCAUAA166WRR0	DHHS caution label	1	AC
6- 7	TCAUAA200WRR0	Monitor caution label	1	AB
6- 8	TINSEA807WRR0	Instruction book	1	AH
6- 9	TCAUAA240WRR0	Screw caution	1	AC
6-10	TLAB-A183WRR0	Service label	1	AB

SCREWS,NUTS AND WASHERS

7- 1	XHPSD40P08K00	Screw : 4mm x 8mm	9	AA
7- 2	XHPSD30P06000	Screw : 3mm x 6mm	1	AA
7- 3	XHTSD40P08RV0	Screw : 4mm x 8mm	2	AA
7- 4	XHTSD40P12RV0	Screw : 4mm x 12mm	1	AA
7- 5	XOTSD40P12RV0	Screw : 4mm x 12mm	5	AA
7- 6	XOTSD40P12000	Screw : 4mm x 12mm	15	AA
7- 7	XOTSE40P08000	Screw : 4mm x 8mm	1	AA
7- 8	LX-CZA070WRE0	Special screw (Torx tamper proof screw)	2	AC

HOW TO ORDER REPLACEMENT PARTS

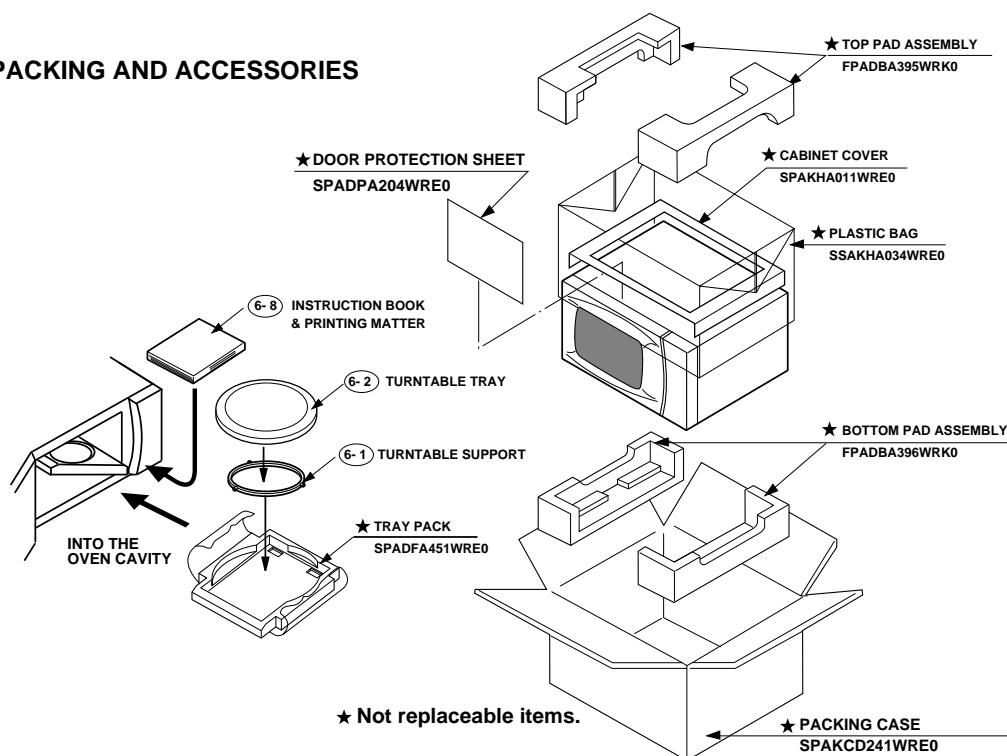
To have your order filled promptly and correctly, please furnish the following information.

1. MODEL NUMBER 2. REF. NO. 3. PART NO. 4. DESCRIPTION

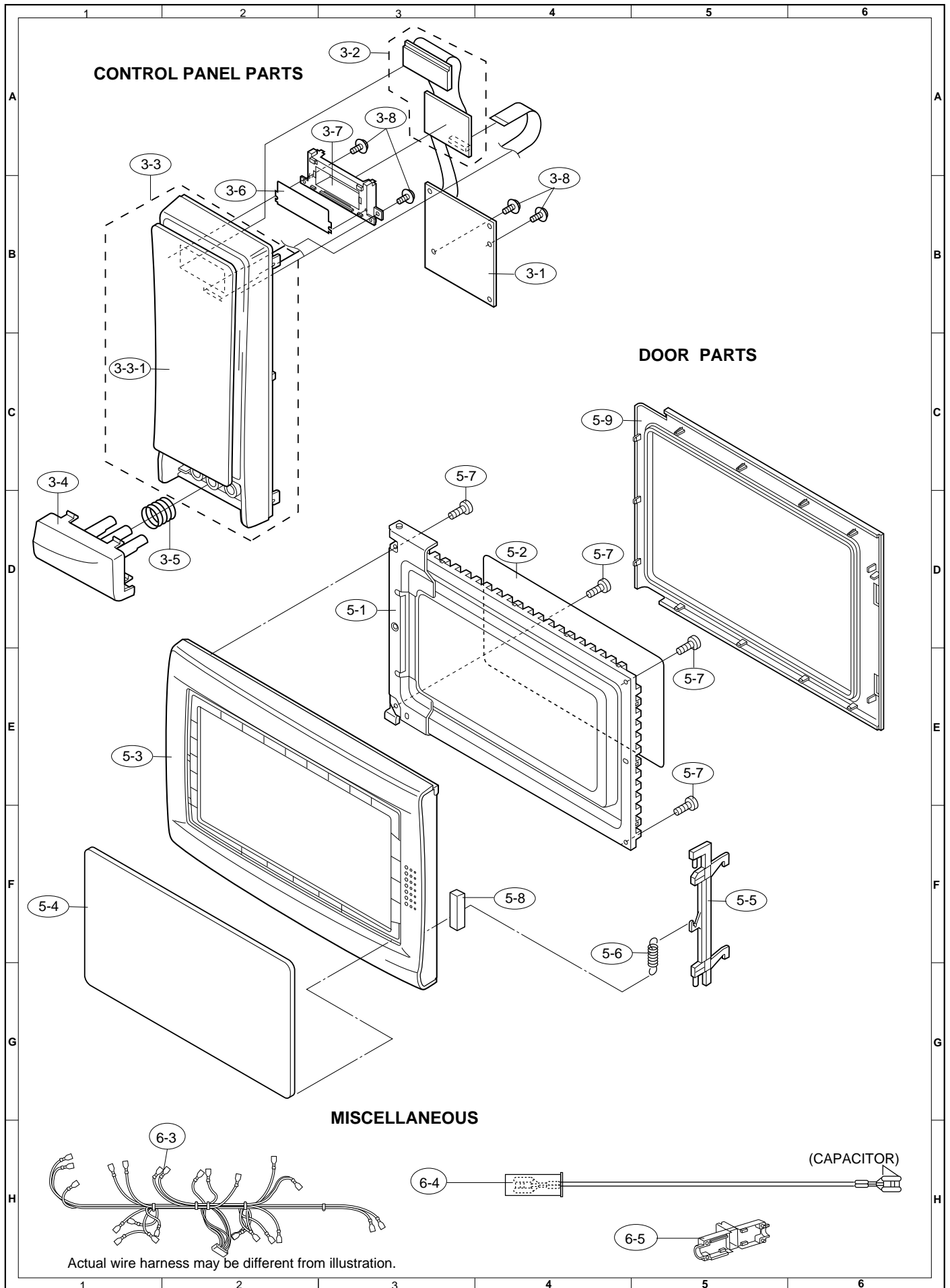
Order Parts from the authorized SHARP parts Distributor for your area.

Defective parts requiring return should be returned as indicated in the Service Policy.

PACKING AND ACCESSORIES







SHARP

COPYRIGHT © 1999 BY SHARP CORPORATION

ALL RIGHTS RESERVED.

No part of this publication may be reproduced, stored in retrieval systems, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without prior written permission of the publisher.